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Method for Preventing Fraud in Coin-Operated or Banknote-Operated Vending Machines

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Patent Claims

1. Method for preventing fraud in coin-operated or banknote-operated vending machines, in particular vending machines dispensing goods or
15   services, in which the sale transaction after inserting coins and/or banknotes is initiated when a sufficient credit value is reached and the said service is provided, characterised in that the denominations of the coins or banknotes i.e. the number type, is determined for each numerical procedure, wherein the number types or denomination types that were in-
20   serted until a specified credit value (K) was reached are determined, that the number types or denomination types are added in number type counters (Z), that when a predetermined limit criterion is reached a signal (F) is generated, and
25   that the signal (F) is passed to a logic circuit and a time element (T) is activated that prevents the operation of the vending machine for a duration (T_{inop}).

2. Method according to claim 1, characterised in that the initial value (Z_x) of
30   the number type counter in which the signal (F) is generated can be adjusted.

3.   Method according to claim 1 or 2, characterised in that with successive numerical procedures involving different denominations, i.e. with different number types, the number type counter (Z) is reset.

4.   Method for preventing fraud in coin-operated or banknote-operated vending machines, in particular vending machines dispensing goods or services, in which the sale transaction after inserting coins and/or bank-notes is initiated when a sufficient credit value is reached and the said service is provided, characterised in that

the coin or banknote denominations, i.e. the number type, is determined for each numerical procedure, wherein the types of coins or banknotes that were inserted until a specified credit value (K) was reached are determined,

that the frequency with which identical coins or banknotes were inserted in the case of a plurality of sale transactions is determined,

that when a preset limit criterion is reached a signal (F) is generated, and that the signal (F) is passed to a logic circuit and a time element (T) is activated that prevents the operation of the vending machine for a duration (T_{inop}).

5.   Method according to claim 4, characterised in that the time element (T) comprises a time function ($TF_{(p)i}$) whose behaviour (duration, nature and manner) can be described by parameters.

6.   Method according to one of the preceding claims, characterised in that the logic circuit, i.e. the time element (T), acts in such a way on a coin or banknote checking device that the acceptance of coins or banknotes of this value is prevented for a duration (T_{inop}).

7.   Method according to one of the preceding claims, characterised in that the duration (T_{inop}) of the time element (T) can be adjusted.

8. Method according to one of the preceding claims, characterised in that the duration (T_{inop}) of the time element (T) has an incremental function, wherein the time in the case of successive attempts to commit fraud is in each case extended.

9. Method according to one or more of the preceding claims, characterised in that the time (T_v) between two successive sale transactions is measured and

    that if a preset time (T_{V-V}) is not reached in one or a predetermined number (A_v) of sale transactions (ΣT_v), a signal (F) is generated that prevents the operation of the vending machine and consequently the sales for a duration (T_{inop}).

10. Method according to one or more of the preceding claims, characterised in that the times (T_v) between two successive sale transactions is measured, that in the case of several successive sale transactions their total time (T_{vs}) is determined,

    that the time (T_{vs}) is compared to a limiting value (($T_{max})_n$), and

    that if this limiting value is not reached a signal (F) is generated that prevents the operation of the vending machine and consequently the sales for a duration (T_{inop}).

11. Method according to claim 9 or 10, characterised in that the time (T_{V-V}) and/or (($T_{max})_n$) can be adjusted.

12. Method according to one or more of the preceding claims, characterised in that the maximum limiting values ($M_{i\,max}$) as well as (T_{max}) are determined dynamically and independently via a number (A_v) of considered sale transactions and the future limiting theoretical value is determined via an incremental value (ΔM, ΔT).

13. Method according to one or more of the preceding claims, characterised in that the number of refund attempts over several successive sale transactions is determined, and that if a preadjustable limiting value is reached then the fault signal (F) is generated.

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14. Method according to one or more of the preceding claims, characterised in that a circuit arrangement is activated through the signal (F) by means of which an emergency notification/interference notification is initiated by radio or GSM/telephone.

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15. Method according to one or more of the preceding claims, characterised in that a photographic medium, preferably a digital camera, is activated by the signal (F), by means of which the user of the vending machine is recorded.

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